

Renewable Portfolio Standards

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More than half of U.S. states require that a minimum share of the electricity sold to their residents come from renewable sources. These rules, called renewable portfolio standards (RPSs), share the common goal of substituting electricity generated by renewable sources for that generated by fossil fuels, thereby reducing local air pollution and greenhouse gases.

Are they effective? The Natural Resources Defense Council has claimed that RPSs have been a big driver of renewables growth. And the Lawrence Berkeley National Lab writes that “roughly half of all growth in U.S. renewable electricity generation and capacity since 2000 is associated with state RPS requirements.” But recent academic studies by economists find little or no evidence that RPSs have been a significant cause of U.S. renewables growth.

Asking whether RPSs have worked as intended is more complicated than it may seem, for multiple reasons. First, in all but two states, utilities can comply either by reducing the amount of electricity they purchase generated from fossil fuels, which is the goal, or by increasing the amount generated by renewable sources, which has no environmental benefit. Second, utilities in states with RPSs typically purchase some power generated in other states. Third, some of the renewable sources of electricity in the U.S. would likely have been built even in the absence of RPS rules, thanks to other environmental rules or because generating electricity from wind and solar power has become cost-effective at market prices. And fourth, for complicated reasons stemming from the way researchers typically assess the stringency of RPS rules—in megawatt hours of renewables required—that stringency may itself be endogenous.

We combine the best aspects of prior economic analysis, attempting to address each of these four complications. Our results corroborate their findings, that RPS policies to date have done little to increase renewables or decrease fossil fuel use. In one specification, we find that RPSs are responsible for, at most, 11 percent of the electricity generated from wind sources in the U.S. since 2000, and none of the electricity from solar. However, we are cautious about the results, given their variability across different specifications and implausibility in the case of some outcomes.

It is possible, of course, that RPSs to date have been ineffective because in most states they have been insufficiently strict. That may be changing, as many states with RPSs have announced plans to tighten them in the near future. It is also possible that a federal, nationwide renewable policy would be more effective, given that 20 U.S. states currently do not have an RPS.

What is clear, no matter the specification chosen or explanation for the outcome, is that claims that RPSs have been responsible for a significant portion of US renewables growth to date cannot be supported by current evidence.

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